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FORCING CANADA GEESE INTO ELEVATED NESTING STRUCTURES¹

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ABSTRACT

Canada goose nests were manually transferred from normal ground position into a metal tub. Nesting success for transferred geese was 68.5 percent. Three years average hatchability of disturbed eggs was 62.0 percent while that of undisturbed eggs was 67.5 percent.

INTRODUCTION

Artificial elevated nesting structures for Canada geese (*Branta Canadensis*) have long been recognized as an important technique in increasing production (Craighead and Stockstad 1961; Brakhage 1965; and Dill and Lee 1970). Conservation agencies in Missouri, (Brakhage 1965) and Ohio (Bednarik 1970) have been most successful in developing resident nesting flocks of geese. Their success has been directly related to the use of artificial elevated nesting structures. Gore and Barstow, 1969, reported on the establishment of a local nesting free-flying flock of Canada geese in middle Tennessee. Elevated nesting tubs were an integral part of the Tennessee project. This paper will describe a technique used to hasten the acceptance of elevated nesting structures by geese.

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METHODS

A tub nesting program was started in conjunction with the middle Tennessee goose flock in 1967. Tubs were made from 55-gallon drums and were constructed and erected following the Ohio pattern (Bednarick 1970). The tubs were distributed in and around the five largest farm ponds on the private estate on which the goose flock started.

Eleven tubs were put up over water, while 29 tubs were placed over land. Of the 29 over-land tubs, only eight were elevated. Land tubs were placed near locations where geese had nested in previous years. It was hoped that the geese would originally accept some of the tubs for nesting sites. An alternate plan was to move the nest into a tub during the fourth week of incubation if the geese proceeded to nest on the ground. After a nest was moved into a tub, providing the goose accepted the move, the plan was to block up or elevate the tub by placing 4 x 4-inch timbers under the structure.

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A four-inch bottom layer of sawdust was placed in each tub. Straw or hay was placed above the sawdust. Tubs were inspected, reconditioned, and refurbished with nesting materials by the middle of March each year from 1967 to 1971.

Goose nesting progress was monitored by frequent visits to the estate. Estimated hatching dates were determined for most nests. During the fourth week of incubation, the attempt was made to move ground nests. A spade was used to cut the grass and soil under the nest. An assistant was often used to help cradle the nest and eggs on the spade while picking up and placing in tub. The tub, containing the nest, was then placed over the exact area of ground from which the nest was removed.

The goose and tubbed nest were observed from a distance to determine if the female would accept the transfer. Usually if the goose did not accept the transfer within 45 minutes, the nest was removed and placed on the ground.

If geese accepted the tubs, most of the nests were revisited one or two days later and 4 x 4-inch timbers were placed under the structures. A day or two later, other blocks or timbers were inserted under tubs. The height raised was related to the time available until the eggs hatched and/or the overall time the investigator could spend on the project. Some tubs were never raised off the ground while other tubs were raised as high as 20 inches. (Gore, 1967)

RESULTS AND DISCUSSION

Canada goose nests were transferred to metal tubs in 1967, 1968, and 1969 on a small private estate in middle Tennessee. The average number of nests per year on the 1200 acre estate was 16. In 1967, attempts were made to transfer nine nests, while in 1968, four nest transfers were attempted and in 1969, six nests were moved. Nesting success of transferred geese is shown in Table 1, while hatchability of transferred versus non-transferred eggs is presented in Table 2.

In 1967, nesting success of the six successfully transferred geese was 100 percent. This high success was achieved in spite of frequent nest inspections and associated work around tubs when moving and elevating. Sixty-two percent of the moved eggs hatched as compared to a hatching success of 69.5 percent for undisturbed eggs.

The three tub transfer failures in 1967 were with geese in the late third week or early fourth week of incubation. They possibly would have accepted tub later if a second transfer had been attempted.

Nesting success of the four nests transferred in 1968 was 50 percent. However, eggs from one of the nests were stolen. Overall nest destruction and abandonment was more common in 1968 than in 1967 or 1969.

One of the six nests transferred in 1969 was unsuccessful. The unsuccessful female incubated the transferred eggs for two days before the nest was destroyed. It may have been that these eggs were stolen.

My experience indicated that sitting females often can successfully be enticed to accept her nest when transferred to a tub. It seems important that the tub be placed back over the ground from which the nest was picked up. An attempt to move a nest to a tub a few feet away from the original ground site was unsuccessful. But with the nest in the tub and placed over the original ground site, the goose resumed incubation.

Geese were more hesitant about getting onto a nest when it was slightly elevated. Most geese demonstrated difficulty in getting up into the nest or a lack of interest in the nest. This problem was overcome by aggravating the goose back onto the nest. By this method, the elevated tub and nest were reapproached and the investigator pretended to disturb the nest. The maternal protective behavior of the females for the nest overcame the fear of man and they would jump up into the tub and cover the nest.

Table 1. Nesting success of forced Canada goose nests transferred to metal tubs during fourth week of incubation.

<u>Year</u>	<u>Nest Number</u>	<u>Time of Female Acceptance of Tubs</u>	<u>Fate of Nest</u>
1967	2-4-A	Accepted tub within 10 minutes	Produced 3 goslings
	3-4-A	Accepted tub within 12 minutes	Produced 5 goslings
	3-7-A	Accepted tub within 38 minutes but had to be aggravated onto nest	Produced 4 goslings
	4-3-A	Accepted tub within 30 seconds	Produced 5 goslings
	4-4-A	Tub not accepted by female within 15 minutes. Nest was removed from tub and placed in its original ground position and the goose went immediately to it. Three days later this nest was put back in tub and goose accepted it within 15 minutes.	
	4-5-A	Accepted tub within 1 minute	Produced 3 goslings
	1-2-A, 2-1-A, & 4-2-A	Tubs were not accepted. Nests were removed from tubs and replaced at the ground position. No second attempt was made. These nests were possibly in late 3rd week of incubation when moved.	Produced 1 gosling 1-2-A unsuccessful, 2-1-A and 4-2-A produced 7 and 3 goslings respectively.

1968	3-4-A	Accepted tub - time unknown	Produced 6 goslings
	3-7-A	Accepted tub within an hour	Later abandoned nest
	4-4-A	Accepted tub within 30 minutes	Produced 4 goslings
	4-7	Accepted tub within 30 minutes	Eggs later stolen
1969	2-6	Accepted tub within 20 minutes	Produced 4 goslings
	3-5-A	Accepted tub within 45 minutes	Goose incubated nest for two days, then nest was destroyed.
			No eggs or shells found in nest four days after transfer.
	4-1-A	Accepted tub - time unknown	Produced 3 goslings
	4-3-A	Accepted tub immediately	Produced 6 goslings
	4-4-A	Accepted tub immediately	Produced 5 goslings
	4-5-A	Accepted tub - time unknown	Produced 5 goslings

Number of attempted nest transfers – 19

Number of successful nest transfers – 13

Percent of successful nest transfers – 68.5

Table 2. Comparison of hatchability of Canada goose eggs in transferred nests and non-transferred nests.

Year	Number eggs not moved	Number eggs hatched	Percent	Number eggs moved	Number eggs Hatched	Percent
1967	49	34	69.5	34	21	62.0
1968	49	32	65.5	22	10	45.5
1969	56	38	68.0	31	23	74.0
Total	154	104	67.5	87	54	62.0

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BAND RECOVERIES FROM AN ISOLATED GADWALL COLONY IN EASTERN NORTH CAROLINA

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Pea Island National Wildlife Refuge is located about one quarter of the way down the North Carolina Outer Banks and lies between Pamlico Sound and the Atlantic Ocean. Since 1940 it has had a small gadwall nesting colony averaging about 50 broods annually. An estimated 1,800 young were produced from 1968 to 1972 and 327 or 18.2 percent were banded during this five-year period.